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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,524	01/27/2004	Tohru Ikeda	00862.023420.	9965

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NEW YORK, NY 10112

EXAMINER

ZHU, RICHARD Z

ART UNIT	PAPER NUMBER
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2625

MAIL DATE	DELIVERY MODE
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11/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/764,524	Applicant(s) IKEDA, TOHRU	
	Examiner Richard Z. Zhu	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 9 is/are pending in the application.
 4a) Of the above claim(s) 3 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement

1. Acknowledgement is made of applicant's amendment made on 10/02/2007. Applicant's submission filed has been entered and made of record.

Response to Applicant's Arguments

2. The examiner makes note of applicant's position on the "Prior Art" status of the drawings. The objections are withdrawn.
3. Rejections made under 35 USC 101 and 35 USC 112 2nd Paragraph as well as objection under 37 CFR 1.75 are withdrawn in view of the cancellations of relevant claims.
4. Applicant's amendment to the independent claims are entered and made of record. The applicant's arguments are persuasive, as such, rejections made under 35 USC 102 (b) are withdrawn and new grounds of rejection under 35 USC 103 (a) are entered.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 4-7 and 9 are rejected under 35 USC 103(a) as being unpatentable over *Yamada et al.* (US 20020097456 A1) in view of *Hudson et al.* (US 6057933 A).

Regarding the Apparatus of Claim 7 therefore Method of Claim 1 and Program of Claim 9, Yamada discloses an image processing method comprising the steps of and means for:

inputting image data representing an image, the image data including a plurality of items of color-components (**Figure 2, the Host Device 51 and Image Output Device 52 and see Page 7, Paragraph 0125, image is printed using at least four color inks of yellow, magenta, cyan and black**);

deciding output data of a plurality of items of color-components (**Figure 4, Color Characteristic Conversion 33 and Halftoning 34; Figure 5, S4-S6 and see Page 7, Paragraph 0130 through Page 8, Paragraph 0133. Color Characteristic Conversion 33 and Halftoning 34 accomplishes the same function as Color Transformation Unit and Quantization Processing Unit respectively. The decision process is described via five different embodiments, and executed within Host Device 51**) which represent an image reproduced by an output device (**Figure 2, output device being Image Output Device 52**), based upon the input data (**Page 7, Paragraph 0125**), wherein the input data is generated by adding data distributed based upon color difference to the image data of the plurality of color components (**Page 1, Equations 19 and 20, input X_t is generated on the basis of original image component X and color difference X_{err}**), and the color difference is generated by calculating the difference between the input data and output data (**Page 1, Equation 19 and 20, $X_{err} = X_t - X$, or the difference between input original image component and output image component**);

outputting the output data of the plurality of color components decided in said deciding step (**Figure 5, S9-S10**);

wherein, in a case of an image in a specific area in which image is represented by at least two color-component data (**Figure 15, an image in a specific area being represented by Cyan and Magenta**), output data of color component of any one is decided in said deciding step (**Figure 15, areas b and d was decided to be printed with Cyan and areas c and f was decided to be printed with Magenta whereas said decision process is described by Figure 14. See Page 20, Paragraph 0206-0207 and Page 21, 0217 and 0223 for Cyan and 0220 and 0229 for Magenta, for examples**).

Yamada does not disclose said deciding step is on the basis of by referring to a table in which a correspondence between input data and the output data is stored.

Hudson, in the same field of color error diffusion, discloses a color error diffusion apparatus (**Fig 1 and 2 and see Col 3, Rows 1-30**) that decides output color component data by referring to a table in which a correspondence between input data and the output data is stored (**Fig 3, Step 4, “base level output” and see Col 3, Row 66 – Col 4, Row 35 and see Fig 5, Col 4, Rows 36-42**).

It would've been obvious to one of ordinary skill in the art at the time of the invention to decide output data of a plurality of color components on the basis of a plurality of input color components of *Yamada* using a lookup table, as suggested by *Hudson* whereas the motivation would've been to “pre-calculated as much of the data used in the error diffusion process as is possible and encapsulate this data in a general purpose and performance efficient form” (*Hudson*, Col 2, Rows 41-44).

With respect to the computer program reside upon a statutory computer readable medium, *Yamada* discloses a control program for causing a computer to execute the image processing method (Figure 2, MCU 3001 having a control program execution function at Page 7, Paragraph 0116) and a computer readable medium on which the program set forth has been recorded (Figure 2, ROM 3004 and see Page 7, Paragraph 0117).

Regarding Claim 2, *Yamada* discloses that the two color-components are cyan and magenta (Page 20, Paragraph 0201, thin/thick cyan ink and thin/thick magenta ink), and the specific area is a high-contrast area (Figure 15, areas b and d as high contrast for Cyan and areas c and f as high contrast area for Magenta. The Applicant defined high contrast areas as areas where ILP or sum of distance of color space of input image data, preceding line pixels, and preceding pixel, are small; meaning the neighboring pixels are of the same color or colors that are the closest in color space. On Page 21, Paragraphs 0216-0222 of *Yamada et al* and the areas cited on Figure 15, the pixels in area b and d are all Cyan and c and f are all Magenta, therefore these area are high contrast areas and *Yamada* clearly teaches printing with only Cyan or Magenta ink under areas that are high contrast).

Regarding Claim 4, *Yamada* discloses wherein the output data of the plurality of color-components (Cyan and Magenta) are decided based upon quality of printing required (Referring to the Fourth Embodiment, Figure 14 and see Page 20, Paragraphs 0203 through 0240, the decision process for outputting cyan (Ct) and magenta (Mt) is base on color density of output image data ($Ct = C + C_{err}$ and $Mt = M + M_{err}$) and comparison

with threshold data taken from Lookup Tables whereas the threshold data is a measurement or indication of the desired quality of the output image base on the output image pattern and said threshold data are the results of diligent experimentation with various output image patterns. Therefore, the decision to output cyan and magenta color components is dependent upon the desired quality of the image being outputted.)

Regarding Claim 5, *Yamada* discloses wherein the output data of the plurality of color components is decided based upon characteristics of printing media (Page 20, Paragraph 0201 discloses characteristics of printing media as thin cyan ink, thick cyan ink, thin magenta ink, and thick magenta ink. Furthermore, it discloses decision parameters in Paragraph 0218, 0221, 0233, and 0236 for deciding which characteristics of printing media should be applied to Ct and Mt. To the examiner, the threshold data of LUT are the results of due experimentation with various output patterns to determine how best to produce the image of highest quality. The fact is, such experimentation would not be enabled if it does not consider every element that could result in outputting images of low quality. Therefore, since *Yamada* teaches application of thin and thick inks as result of a decision process by comparing Ct and/or Mt with threshold data, it is a fact that the experimentation that produce the *Yamada* threshold data comprised the consideration of how different characteristics of printing media can affect the quality of output image. In view of this fact, *Yamada* clearly discloses that the decision is based upon characteristics of printing media, albeit via the comparison with the threshold data).

Regarding Claim 6, *Yamada* discloses the plurality of items of output color-component data are decided based upon impact precision of an output dot pattern (Referring to Figure 15, and Page 20, Paragraphs 0218, 0221, 0224, 0227, 0230, 0233, 0236, and 0239. The prior art teaches the application of thick or thin color ink is base on a strategic decision process where a pixel of interest is determined to be printed with thick ink if the color density meets the bounds of certain thresholds and it is determined to be printed with thin ink if the color density meets the bounds of another set of thresholds in order to print an image that would commensurate with image pattern of highest quality as demonstrated by what is shown on Figure 15).

Conclusion

7. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

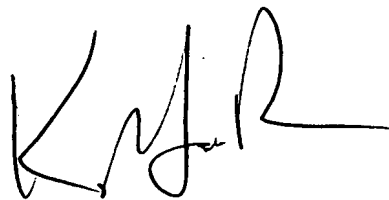
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner's supervisor King Y. Poon whose telephone number is 571-272-7440 or examiner Richard Z. Zhu whose telephone number is 571-270-1587. Examiner Richard Zhu can normally be reached on Monday and Wednesday, 6:00 - 3:30, Tuesday and Thursday, 7:30-5:00, and alternate Friday, 7:30-4:00.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RZ²
11/06/2007

Richard Z. Zhu
Assistant Examiner
Art Unit 2625

A handwritten signature in black ink, appearing to read 'K. Y. Poon', with a long horizontal stroke extending to the right.

KING Y. POON
SUPERVISORY PATENT EXAMINER